

ASSESSMENT OF THE IMPACT OF ANTHROPOGENIC ACTIVITIES ON THE LEVELS OF NITRATES AND NITRITES IN MATHARE-GITATHURU DRAINAGE BASIN

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Mathare-Gitathuru Drainage Basin (MGDB), part of Nairobi River Basin (NRB), is a wetland and home for many people. MGDB, like any other wetland has a great socio-economic potential and the river system is a source of water for domestic and recreational uses by many people living within the basin. The flow of effluents from chemical industries, dumping of solid domestic wastes from urban settlements and run offs from agricultural activities along the river basin, among other anthropogenic activities, are believed to have contributed to the heavy pollution of the MGDB water. The levels of nitrates and nitrites were determined during both wet and dry seasons. Water samples were collected from twenty sampling points along the river, which were identified on the basis of human activities at each point. The nitrate-N levels were determined by the phenol disulphonic acid method while nitrite-N was determined using sulphanilic acid method. The values in brackets represent results for the control samples. The mean concentrations of nitrate-N obtained were 16.94 (7.09) mg/l during the wet season and 8.95 (0.83) mg/l during the dry season, while nitrite-N levels were 5.39 (1.07) mg/l and 5.91 (0.81) mg/l during the wet and the dry seasons respectively. The levels of nitrates and nitrites obtained were higher than the WHO recommended concentrations in drinking water for both seasons. From the trend in the distribution of nitrate and nitrites, it was concluded that the anthropogenic activities have a significant impact on their levels in MGDB. The levels of both nitrates and nitrites were generally found to increase downstream where the anthropogenic activities were more concentrated.

Key words: Anthropogenic activities, Mathare-Gitathuru Drainage Basin, nitrates, nitrites, carcinogen, methemoglobinaemia